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ABSTRACT

Sources to assist junior and senior high school students and teachers in planning, preparing, and executing science fair projects in the environmental sciences are cited in this bibliography that includes a few books with experiments suitable for elementary grade students. Information and/or citations are provided under the following headings: (1) "Introductions to the Topic"; (2) "Subject Headings"; (3) "Basic Texts"; (4) "Specialized Titles"; (5) "Classroom Experiments and Activities," including books, pamphlets, and journal articles; (6) "Handbooks, Manuals, and Titles Listing General Science Experiments"; (7) "Bibliographies"; (8) "Book/Film Reviews and 'Best Book' Sources"; (9) "Abstracting and Indexing Services"; (10) "Journals"; (11) "Representative Journal Articles"; (12) "Selected Materials"; and (13) "Additional Sources of Information." (CW)

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## ENVIRONMENTAL SCIENCE PROJECTS
**Compiled by Constance Carter**

**TB 90-2** **May 1990**

**SCOPE:** Sources to assist junior and senior high school students and teachers in planning, preparing, and executing science fair projects in the environmental sciences are cited here, as well as a few books with experiments suitable for elementary grade students. Sources in other areas of science are listed in Science Fair Projects (LC Science Tracer Bullet 88-4) and Space Science Projects (LC Science Tracer Bullet 89-3). Not intended to be a comprehensive bibliography, this literature guide is designed--as the name of the series implies--to put the reader "on target."

## INTRODUCTIONS TO THE TOPIC

Bombaugh, Ruth. Science fair success. Hillside, N.J., Enslow Publishers, c1990. 96 p. Q182.3.B66 1990
Bibliography: p. 85-87.
A guide for choosing, designing, and completing an investigative science fair project, with an appendix listing prize winning projects by junior-high students.

Environmental experiments ... from Edison. Southfield, Mich., Thomas Alva Edison Foundation, 1984, c1973. 32 p. Pamphlet box*

Figueroa, Edna. Ecoprojects. Science teacher, v. 57, Feb. 1990: 36-38. Q181.S38 and Pamphlet box*

Russell, Milton. Environmental protection for the 1990s--and beyond. Environment, v. 29, Sept. 1987: 12-15, 34-38. UF767.S33

*Available in reference collection, Science Reading Room

SE 051 584

**SUBJECT HEADINGS** used by the Library of Congress, under which books on environmental science projects can be located in most card, book, and online catalogs, include the following:

ECOLOGY--EXPERIMENTS (Highly relevant)
POLLUTION--EXPERIMENTS (Highly relevant)
SCIENCE--EXPERIMENTS (Highly relevant)
See also subdivision EXPERIMENTS under headings of particular interest, such as AIR--POLLUTION, BOTANY, BIOLOGY, EARTH SCIENCES, NATURAL HISTORY, OCEANOGRAPHY, WATER--POLLUTION
SCIENCE PROJECTS (Highly relevant)

AIR--POLLUTION (Relevant)
ACID RAIN--ENVIRONMENTAL ASPECTS (Relevant)
BIOLOGY--FIELD WORK (Relevant)
CONSERVATION OF NATURAL RESOURCES (Relevant)
DEFORESTATION (Relevant)
ENDANGERED SPECIES (Relevant)
ENVIRONMENTAL EDUCATION (Relevant)
ENVIRONMENTAL PROTECTION (Relevant)
GREENHOUSE EFFECT, ATMOSPHERIC (Relevant)
HAZARDOUS WASTES--ENVIRONMENTAL ASPECTS (Relevant)
HUMAN ECOLOGY (Relevant)
MARINE POLLUTION (Relevant)
NATURAL HISTORY--STUDY AND TEACHING (Relevant)
See also subdivision STUDY AND TEACHING or PROBLEMS, EXERCISES, ETC. under subject headings of interest, such as BOTANY, BIOLOGY, ECOLOGY, SCIENCE, URBAN ECOLOGY (BIOLOGY)
NATURAL RESOURCES--MANAGEMENT (Relevant)
NATURE STUDY (Relevant)
OIL SPILLS (Relevant)
OUTDOOR EDUCATION (Relevant)
OZONE DEPLETION (Relevant)
RAIN FOREST ECOLOGY (Relevant)
REFUSE AND REFUSE DISPOSAL (Relevant)
THERMAL POLLUTION OF RIVERS, LAKES, ETC. (Relevant)
URBAN ECOLOGY (BIOLOGY) (Relevant)
WATER--POLLUTION (Relevant)
WILDLIFE CONSERVATION (Relevant)

RESEARCH--METHODOLOGY (More general)

BASIC TEXTS

Bonnet, Robert L., and G. Daniel Keen. Botany: 49 science fair projects. Blue Ridge Summit, Pa., Tab Books, 1989. 146 p. QK52.6.B66 1989
Sources: p. 139-142.

Bonnet, Robert L., and G. Daniel Keen. Environmental science: 49 science fair projects. Blue Ridge Summit, Pa., Tab Books, 1990. 1 v. TD178.B66 1990

Suggests projects suitable for the classroom or a science fair.

Brown, Vinson. Investigating nature through outdoor projects: 36 strategies for turning the natural environment into your own laboratory. Harrisburg, Pa., Stackpole Books, c1983. 254 p. QH318.5.B7 1983

Bibliography: p. 243-248.

Cochrane, Jennifer. Water ecology. New York, Bookwright Press, 1987. 47 p. QH541.3.W3C63 1987

"Organizations to contact": p. 44-45.

Alternates factual information on the ecological aspects of water with activities and experiments covering such areas as the behavior of warm water, acid rain, and pond life.

Gardner, Robert. More ideas for science projects. New York, F. Watts, 1989. 144 p. Q182.3.G37 1989

Bibliography: p. 137-141.

Presents ideas for setting up science projects in the areas of astronomy, ecology, energy, biology, botany, physics, and engineering.

Gutnik, Martin J. Ecology. New York, F. Watts, 1984. 122 p. QH541.24.G87 1984

A collection of environmental science projects that demonstrate the delicate balance of ecological systems and how both people and nature can destroy this balance.

Hairston, Nelson G. Ecological experiments: purpose, design, and execution. Cambridge, Eng., New York, Cambridge University Press, 1989. 370 p. QH541.24.H35 1989

Bibliography: p. 329-351.

Science fairs and projects. Grades 7-12. Washington, National Science Teachers Association, c1988. 70 p. Pamphlet box*

First edition, 1984; second edition, 1985.

A collection of articles reprinted from Science and children, Science scope, and The Science teacher (1981-87) to assist teachers in organizing a science fair, working with students, and establishing equitable judging procedures.

Simon, Seymour. Science projects in pollution. New York, Holiday House, 1972. 118 p. TD176.S55
Bibliography: p. 115.
Instructions for experiments that demonstrate the causes and effects of various types of pollution. Suggests some solutions to pollution problems.

VanCleave, Janice Pratt. Biology for every kid: 101 easy experiments that really work. New York, Wiley, c1990. 224 p. QH316.5.V36 1990

## SPECIALIZED TITLES

Blaustein, Elliott H., Rose T. Blaustein, and Peter Greenleaf. Your environment and you: understanding the pollution problem. Dobbs Ferry, N.Y., Oceana Publications, 1974. 197 p. TD176.B55
Analyzes the scientific principles at work in man's environment, presents a brief history of man and his technology, and examines the causes and nature of pollution and possible ways to reduce it.

Bonnet, Robert L., and G. Daniel Keen. Earth science: 49 science fair projects. Blue Ridge Summit, Pa., Tab Books, c1990. 146 p. QE44.B66 1990
Resource list: p. 141-142.

Cochrane, Jennifer. Urban ecology. New York, Bookwright Press, 1988, c1987. 47 p. QH541.5.C6C63 1987
"Organizations to contact": p. 44-45.
Alternates factual information on the ecological aspects of an urban environment with activities and experiments, covering such areas as city water, parks and ponds, wild mammals in town, and trash.

DiSilvestro, Roger L. The endangered kingdom: the struggle to save America's wildlife. New York, Wiley, c1989. 241 p. QL84.2.D57 1989
Bibliography: p. 223-232.

Earth science on file. New York, Facts on File, c1988. 1 v. (various pagings) (loose-leaf) QE43.E27 1988*

Endangered animals. Washington, National Wildlife Federation, c1989. 95 p. QL83.E53 1989
Considers a number of endangered species, including the giant panda, black rhino, and sea turtle, and discusses what is being done to save them.

Gay, Kathlyn. The greenhouse effect. New York, F. Watts, 1986. 87 p. QC912.3.G39 1986
Bibliography: p. 81-82.
Examines evidence that rising levels of carbon dioxide in the atmosphere may be changing the earth's climate. Also discusses how and why scientists study climatic changes.

Green planet: the story of plant life on earth. Edited by David M. Moore. Cambridge, Eng., New York, Cambridge University Press, 1982. 288 p. QK901.G82 1982*
Bibliography: p. 288.

Hoffman, Jane. Backyard scientist. Series three. Irvine, Calif., Backyard Scientist/Jane Hoffman, c1990. 52 p.
Pamphlet box*

Kiefer, Irene. Poisoned land: the problem of hazardous waste. New York, Atheneum, 1981. 90 p. TD811.5.K53 1981
Discusses such aspects of hazardous waste disposal as past accidents, effects on humans and the environment, Environmental Protection Agency guidelines for disposal, and suggestions for the future.

Matthiessen, Peter. Wildlife in America. Rev., updated ed. New York, Viking, 1987. 332 p. QL151.M37 1987
Bibliography: p. 315-320.

Middleton, Nick. Atlas of environmental issues. New York, Facts on File, c1989. 63 p. QH75.M486 1989
Describes and explains major environmental issues of the world today including soil erosion, deforestation, mechanized agriculture, oil pollution of the oceans, acid rain, overfishing, and nuclear power.

Milne, Lorus Johnson, and Margery J. G. Milne. The mystery of the bog forest. New York, Dodd, Mead, c1984. 127 p.
QH541.5.B63M55 1984
Explains the origin of bogs, their special attractions, and the unique plant life to be found in them.

The Ocean book: aquarium and seaside activities and ideas for all ages. Center for Marine Conservation. New York, Wiley, c1989. 113 p. GC21.5.028 1989
Bibliography: p. 107.

O'Connor, Karen. Garbage. San Diego, Calif., Lucent Books, c1989. 80 p. TD792.026 1989
Bibliography: p. 75.
Examines the dumping of garbage in oceans, on land, in the air, and in space and suggests possible solutions to the problem of waste pollution.

Our poisoned planet: can we save it? Editor, Oliver Trager. New York, Facts on File, c1989. 216 p. TD176.097 1989
Reviews environmental issues through the words and images of the nation's leading editorial writers and cartoonists.

Pringle, Laurence P. Rain of troubles: the science and politics of acid rain. New York, Macmillan; London, Collier Macmillan, c1988. 121 p. TD196.A25P75 1988
Bibliography: p. 114-116.
Discusses the discovery, formation, transportation, and effects on plant and animal life of acid rain and how economic and political forces have delayed action needed to reduce this slow poison from the sky.

Save the birds. Rudolph L. Schreiber and others. Boston, Houghton Mifflin, c1989. 384 p. QL676.5.S26 1989*

Simon, Seymour. How to be an ocean scientist in your own home. New York, J. B. Lippincott, c1988. 136 p. GC21.5.S56 1988

Stein, Sara Bonnett. The evolution book. New York, Workman Pub., c1986. 389 p. QH48.S7915 1986
Text, experiments, projects, investigations, and plentiful pictures show the reader how to unlock the secrets of the earth by investigating woodlands, beaches, and mountains.

## CLASSROOM EXPERIMENTS AND ACTIVITIES

### BOOKS AND PAMPHLETS

Allen, Wendy B., and Patty O. McLaughlin. Sea sampler: aquatic activities for the field and classroom (elementary). Charleston, S.C., South Carolina Sea Grant Consortium, 1985. 118 p. Pamphlet box*

----- Sea sampler: aquatic activities for the field and classroom (secondary). Charleston, S.C., South Carolina Sea Grant Consortium, 1985. 114 p. Pamphlet box*

Camp, William G., and Thomas B. Daugherty. Managing our natural resources. Albany, N.Y., Delmar Publishers, c1988. 300 p. HC103.7.C33 1988
Examines the nature, history, and management of natural resources ranging from soil and water to forests, wildlife, and marine resources. Includes suggested activities and discussion of careers in the field.

Christensen, John W. Global science: energy, resources, environment. 2nd ed. Dubuque, Iowa, Kendall/Hunt Pub. Co., c1984. 355 p. TJ163.2.C4884 1984
Revision of Energy, resources, and environment (c1981). Laboratory manual and Teacher's guide available from publisher.
Third ed. being published by Kendall/Hunt in July 1990.

Collette, Alfred T., and Eugene L. Chiappetta. Science instruction in the middle and secondary schools. 2nd ed. Columbus, Ohio, Merrill Pub. Co., c1989. 471 p. Q183.3.A1C637 1989*
See especially "Science projects, science fairs, field experiences" (p. 176-199).

Cornell, Josephy Bharat. Sharing the joy of nature: nature activities for all ages. Nevada City, Calif., Dawn Publications, c1989. 167 p. QH51.C78 1989
Bibliography: p. 156-158.

Educational Research Council of America. You and the environment: an investigative approach. Gary D. Day and others. Boston, Houghton Mifflin, c1976. 365 p. QH316.5.R35 1976
Editions for 1970 and 1974 by F. A. Rasmussen published under title Man and the environment.

Global issues education set. Washington, Global Tomorrow Coalition, c1990. 119 p. (loose-leaf) Pamphlet box*
Based on the Global ecology handbook, this compilation provides activities and lesson plans to inform students at the primary and secondary levels (grades 3-12) about specific global issues such as biological diversity, tropical forests, sustainable development, ocean and coastal resources, and the biosphere.

Hillman, Lawrence E. Nature puzzlers. Englewood, Colo., Teacher Ideas Press, 1989. 152 p. QH51.H54 1989
Bibliography: p. 143-146.

How to set up and maintain a saltwater aquarium. College Station, Tex., Marine Information Service, Sea Grant College Program, 1981. 8 p. Pamphlet box*
"TAMU-SG-81-504."

Johnson, Cathy. The local wilderness: observing neighborhood nature through an artist's eye. New York, Prentice Hall Press, c1987. 175 p. QH53.J64 1987
Bibliography: p. 161-169.

Klein, William J. Learning under the sun. Ames, Iowa State University Press, 1988. 386 p. QH53.K57 1988

McVey, Eileen. Aqua-topics: aquaculture for youth and youth educators. Beltsville, Md., Aquaculture Information Center, National Agricultural Library, 1990. 16 p.
Pamphlet box*

Nature's classroom: a program guide for camps and schools. Storer Camps; edited by Jennifer R. Cassens. Martinsville, Ind., American Camping Association, c1988. 118 p.
Bibliography: p. 114-115. LB1047.N37 1988

Science and society: a source book for elementary and junior high school teachers. Rita Peterson and others. Columbus, Ohio, Merrill Pub. Co., c1984. 665 p. Q183.A1S35 1984
See especially "Environmental biology" (p. 247-307) and "Teaching environmental biology" (p. 308-353).

Tips and tricks in outdoor education: approaches to providing children with educational experiences in the outdoors. Prepared by members of the Faculty in Outdoor Teacher Education, the Lorado Taft Field Campus of Northern Illinois University. Edited by Malcolm D. Swan. 4th ed. Danville, Ill., Interstate Printers & Publishers, c1987. 254 p. LB1047.T57 1987

Voris, Helen H., Maija Sedzielarz, and Carolyn P. Blackmon. Teach the mind, touch the spirit: a guide to focused field trips. Chicago, Dept. of Education, Field Museum of Natural History, c1986. 80 p. QH51.V67 1986
Bibliography: p. 75-76.

## CLASSROOM EXPERIMENTS AND ACTIVITIES

### JOURNAL ARTICLES

Anderson, Christopher L. Designing a zoo-based endangered species database. Science activities, v. 26, Nov./Dec. 1989: 14-18. Q181.A1S29

Froschauer, Linda. Zip up your science; convenience, versatility, and student enthusiasm can be "in the bag" when you do science activities this year. Learning, v. 18, Sept. 1989: 68-71. LB5.L43

Golden, Richard, and Cary Sneider. The greenhouse effect in a vial: an effect-ive demonstration. Science teacher, v. 56, May 1989: 57-59. Q181.S38

Hampton, Carolyn H., and Carol D. Hampton. Growing algae in the classroom. Science and children, v. 17, Feb. 1980: 40-41. LB1585.S34

Hoch, Loren, and Marlene Pond. There's science in the story! Using children's literature to introduce basic science concepts. Instructor, v. 99, Apr. 1990: 19-20. L11.N74

Kanis, Ira B., and Joseph Saccente. Same play, different actors: the aquatic community. Science activities, v. 25, Apr./May 1988: 11-15. Q181.A1S29

Kuserk, Frank T. Measuring discharge & materials transport in stream ecosystems. American biology teacher, v. 51, Feb. 1989: 100-102. QH1.A275

Markle, Sandra. Looking into Biosphere II: the world's boldest ecological experiment will soon be underway. Set the stage with these environmental explorations. Instructor, v. 99, Mar. 1990: 85-88. L11.N74

Mayer, Victor J., and Nadine K. Hinton. Animals in the classroom: considering the options. Science teacher, v. 57, Mar. 1990: 26-30. Q181.S38

McCabe, Charlotte. Acid rain in the classroom. Nature study, v. 40, Feb. 1987: 5-6. QH81.N33

McLamb, L. W., and Susan A. Walton. Energy relationships in aquatic environments: a computer approach. Science activities, v. 24, Feb./Mar. 1987: 14-17. Q181.A1S29

Pierson, Duane R. The use of journals in nature study and field science. Nature study, v. 43, Mar. 1990: 23-25. QH81.N33

Railton, Esther P. Teaching about water. Nature study, v. 40, Feb. 1987: 25-27. QH81.N33

Rivard, Leonard. A teacher's guide to science fairing. School science and mathematics, v. 89, Mar. 1989: 201-207. Q1.S28

Scharmann, Lawrence C. Energy conservation: a project for grades 5-7. Science activities, v. 26, Nov./Dec. 1989: 8-13. Q181.A1S29

Zeph, Paul T. Teacher aids for using a discovery trail. Nature study, v. 38, Jan. 1985: 26-28. QH81.N33

## HANDBOOKS, MANUALS AND TITLES LISTING GENERAL SCIENCE EXPERIMENTS

Brainerd, John W. The nature observer's handbook: learning to appreciate our natural world. Chester, Conn., Globe Pequot Press, c1986. 253 p. QH81.B768 1986
Bibliography: p. 209-237.

Brown, Vinson. Building your own nature museum: for study and pleasure. New York, ARCO Pub., c1984. 161 p.
Bibliography: p. 138-152. QH61.B88 1984
Gives instructions on how to acquire, care for, preserve, classify, display, and study animals, plants, rocks, and shells. Also includes ideas for projects and a list of equipment and specimen suppliers.

Engleson, David C. A guide to curriculum planning in environmental education. Madison, Wisconsin Dept. of Public Instruction, 1989, c1985. 103 p. (Wisconsin Dept. of Public Instruction. Bulletin, 6094) Pamphlet box*
"Resources for environmental education curriculum development": p. 85-90.

50 simple things kids can do to save the earth. The Earth Works Group. Kansas City, Mo., Andrews and McMeel, c1990. 156 p. TD171.7.A16 1990 and Pamphlet box*

Gartrell, Jack E., Jr., Jane Crowder, and Jeffrey C. Callister. Earth: the water planet. Washington, National Science Teachers Association, 1989. 191 p.
"Materials and sources": p. 179-185. Pamphlet box*

The Global ecology handbook: what you can do about the environmental crisis. Global Tomorrow Coalition; edited by Walter J. Corson. Boston, Beacon Press, c1990. 414 p. TD171.7.G56 1990*
Names of relevant organizations and lists of books, articles, periodicals, audiovisual materials, and teaching aids are given at the end of each chapter, and an appendix supplies a directory of the organizations cited in the text.

Gutnik, Martin J. How to do a science project and report. New York, F. Watts, 1980. 63 p. Q164.G96

Johnson, Susan L. Nature quest: leadership training manual. Editor, Karen Jensen. Washington, National Wildlife Federation, c1985. 40 p. QH53.J644 1985
Bibliography: p. 39.

Pentz, Mike, and Milo Shott. Handling experimental data. Edited by Francis Aprahamian. Milton Keynes, Eng., Philadelphia, Open University Press, c1988. 95 p. Q182.3.P46 1988

Prochnow, Dave. 101 experiments for the young scientist. Blue Ridge Summit, Pa., Tab Books, c1988. 242 p.
Bibliography: p. 235-238. Q182.3.P76 1988

Recycling study guide. Authors: Anne Hallowell and others. Madison, Bureau of Information and Education, Wisconsin Dept. of Natural Resources, 1989. 31 p. Pamphlet box*
"PUBL-IE-020 89Rev."
Resources: p. 30-31.

Science experiments on file: experiments, demonstrations, and projects for school and home. New York, Facts on File, c1989. 300 p. (loose-leaf) Q182.3.S33 1989*

Tocci, Salvatore. How to do a science fair project. New York, F. Watts, 1986. 128 p. Q164.T68 1986*
Bibliography: p. 119-122.
A step-by-step guide for creating a variety of projects suitable for entry in a science fair with suggestions for choosing a subject, performing the experiment, and polishing the presentation.

## BIBLIOGRAPHIES

Anglemyer, Mary, and Eleanor R. Seagraves. The natural environment: an annotated bibliography on attitudes and values. Sponsored by Global Tomorrow Coalition. Washington, Smithsonian Institution Press, 1984. 268 p.
Z7405.N38A52 1984

Clewis, Beth. A guide to nature-study manuals. RSR: reference services review, v. 17, winter 1989: 55-58, 85.
Pamphlet box*

A Core bibliography on global issues related to environment, resources, population, and sustainable development. Washington, Global Tomorrow Coalition, 1990. 28 leaves.
Pamphlet box*

Educators guide to free science materials. 1st ed.- 1960- Compiled and edited by Mary H. Saterstrom. Randolph, Wis., Educators Progress Service. annual.
Q181.A1E3*

Johnson, Carolyn M. Discovering nature with young people: an annotated bibliography and selection guide. New York, Greenwood Press, 1987. 495 p. Z5818.N36J64 1987*
In addition to substantial sections listing print and audiovisual materials for young readers and items for educators and parents, includes information about sources of reviews, educational and recreational programs, organizations and clubs, contests and assorted games, kits, puzzles, posters, and other supplies.

Lawrence, Susan. U.S. Government publications that can support school curriculum. Manchester, N.H., Manchester City Library, 1990. 43 p. Pamphlet box*
See especially "Environment" (p. 15-16).

Marine education: a bibliography of educational materials available from the nation's Sea Grant College Programs. College Station, Tex., Sea Grant College Program, Texas A&M University, 1988. 35 p. Pamphlet box*
An excellent guide to sources of free and inexpensive pamphlets and curriculum material on the marine environment. Complete instructions for ordering materials from over 30 institutions are given.

Pilger, Mary Anne. Science experiments index for young people. Englewood, Colo., Libraries Unlimited, 1988. 239 p. Q182.3.P735 1988b*
Available also in a software version.
An index to science experiments and activities in almost 700 books, with descriptions, location codes, and cross-indexing.

Resource guide to educational materials about agriculture. A project of Agriculture in the Classroom. Washington, Agriculture in the Classroom, U.S. Dept. of Agriculture; for sale by the Supt. of Docs., U.S. Govt. Print. Off., 1988. 68 p. Pamphlet box*
Among the 328 print and audiovisual items listed are materials on soil erosion, water conservation, plants and the environment, and resource conservation.

Science fair project index, 1960-1972. Compiled by the staff of the Science and Technology Division of the Akron-Summit County Public Library. Edited by Janet Y. Stoffer. Metuchen, N.J., Scarecrow Press, 1975. 728 p.
Bibliography: p. 713-728. Q182.3.S34 1975*

Science fair project index, 1973-1980. Edited by Science and Technology Division, Akron-Summit County Public Library. Metuchen, N.J., Scarecrow Press, 1983. 723 p.
Bibliography: p. 709-723. Q182.3.S34 1975 Suppl.*

Science fair project index, 1981-1984. Edited by Cynthia Bishop, Deborah Crowe, Science and Technology Division, Akron-Summit County Public Library. Metuchen, N.J., Scarecrow Press, 1986. 686 p.
Bibliography: p. 680-686. Q182.3.S34 1975 Suppl. 2*

Science for children: resources for teachers. National Science Resources Center, Smithsonian Institution, National Academy of Sciences. Washington, National Academy Press, 1988. 176 p. Z5818.S3S38 1988*

Science project information index, 1973-1983. Edited by Alex Spence. Toronto, Infolib Resources, c1984. 282 p.
Bibliography: p. 279-282. Q182.3.S64 1984

The Second science project information index. Edited by Alex Spence. Toronto, Infolib Resources, c1986. 144 p.
Science Fair Projects Pamphlet box*
Bibliography: p. 141-144.

## BOOK/FILM REVIEWS AND "BEST BOOK" SOURCES

Appraisal: science books for young people. v. 1- winter 1967- Boston, Children's Science Book Review Committee. Z7401.A63

Morrison, Philip, and Phylis Morrison. Santa Claus bags a varied collection of science books for children. Scientific American, v. 261, Dec. 1989: 144-153. T1.S5
An annual feature of the December issue; title varies from year to year.

The Museum of Science and Industry basic list of children's science books. 1973/1984- Compiled by Bernice Richter and Duane Wenzel. Chicago, American Library Association, 1985- Z7401.M87
Kept up to date with annual supplements.

New technical books. v. 1- June/Aug. 1915- New York, New York Public Library. Z5854.N542*

Pearce, Karla. Best sci-tech books of 1989: LJ takes a new look at the science collection and recommends 58 books libraries should own. Library journal, v. 115, Mar. 1, 1990: 41-46. Z671.L7
An annual feature of the March 1 issue.

O'Connell, Susan M., Valerie J. Montenegro, and Kathryn Wolff. The best science books & A-V materials for children. Washington, American Association for the Advancement of Science, c1988. 335 p. (AAAS publication 87-11)
Z7401.027 1988*

Outstanding science trade books for children in 1989. Science and children, v. 27, Mar. 1990: 30-37.
Best Books vertical file*

These 100 books were chosen for their accuracy, readability, and pleasing format, and are aimed primarily at children in grades K-8. Each entry is annotated.

Powell, Russell H., and James R. Powell. Core list of books and journals in science and technology. Phoenix, Oryx Press, 1987. 134 p. Z7401.P778 1987*

Science & technology: a purchase guide for branch and public libraries. Pittsburgh, Carnegie Library of Pittsburgh, 1989. 69 p. Best Books vertical file*

Published yearly, this is an annotated bibliography of new books. The titles are intended primarily for the general adult reader, but a number of books of interest to young persons are also represented. A special feature is the selection of books for libraries which buy only 50-100 titles each year.

Science books & films. v. 1- Apr. 1965- Washington, American Association for the Advancement of Science. Z7403.S33*

Science books for children: selections from Booklist, 1976-1983. Selected by Denise Murcko Wilms. Chicago, American Library Association, 1985. 183 p. Z7401.S363 1985*

Student books. New scientist, v. 126, Apr. 28, 1990: 70-76, 78-84, 86. Q1.N52

A selection by university teachers of texts for undergraduates in computer science, physics, astronomy, mathematics, chemistry, earth sciences, biochemistry, biology and psychology.

This feature appears annually, e.g., Apr. 22, 1989, Apr. 28, 1988, Apr. 30, 1987, Sept. 18, 1986, Sept. 26, 1985.

Wilms, Denise Murcko. Outstanding science books for the classroom. Learning, v. 12, Feb. 1984: 50-52. LB5.L43

Wolff, Kathryn, Susan M. O'Connell, and Valerie J. Montenegro. AAAS science book list, 1978-1986. Washington, American Association for the Advancement of Science, 1986. 568 p. (AAAS publication 85-24) Q181.A1A68 no. 85-24*

**ABSTRACTING AND INDEXING SERVICES** that index relevant journal articles on science fair projects and school science activities are listed below. Some terms are suggested as aids in searching. The following indexes are available in most public and college libraries.

Current Index to Journals in Education (1969-) Z5813.C8 SSRR
- See: Conservation Education
- Environmental Education
- Science Activities
- Science Experiments
- Science Fairs
- Science Projects

Education Index (1929-) Z5813.E23 SSRR
- See: Conservation of Resources
- Environmental Education
- Science--Activities
- Science--Exhibits
- Science--Experiments
- Science--Projects

General Science Index (1978-) Z7401.G46*
- See: Conservation of Resources
- Environmental Education
- Science Fairs, School
- Science--Exhibitions

Magazine Index (1980-) Available in several formats in LC
- See: Conservation of Natural Resources--Study and Teaching
- Environmental Education
- Science--Exhibitions
- Science--Experiments

Readers' Guide to Periodical Literature (1900-) AI3.R45 SSRR
- See: Science Fairs
- Science Experiments

Resources in Education (1966-) Z5813.R4 SSRR
- See: Conservation (Environment)
- Environmental Education
- Science Activities
- Science Experiments
- Science Fairs
- Science Projects

Note: Consult reference librarian for location of abstracting and indexing services in the Science Reading Room

Vertical File Index (1932/1934-) Z1231.P2V48 SSRR
See: Science--Study and Teaching
Subject of interest, e.g., Endangered Species, Natural History, Natural Resources

Students may also need to use subject-oriented abstracting and indexing services for information on subjects related to the environment. Sample titles are listed below. These may be available only in large or specialized libraries. A librarian may be able to suggest additional titles.

Applied Science & Technology Index (1913-)
Bibliography and Index of Geology (1933-)
Biological Abstracts (1926-)
Biological & Agricultural Index (1916-)
Biology Digest (1974-)
Chemical Abstracts (1907-)
Ecological Abstracts (1974-)
Ecology Abstracts (1975-)
Energy Research Abstracts (1976-)
Environment Abstracts Annual (1971-)
Environmental Periodicals Bibliography (1972-)
EPA Publications Bibliography (1977-)
Meteorological & Geoastrophysical Abstracts (1950-)
Pollution Abstracts (1970-)
Wildlife Review (1935-)
Zoological Record (1864-)

**JOURNALS** that often contain articles relevant to science fair projects are

Audubon QL671.A82
American Biology Teacher QH1.A275
Defenders S960.D43
Environment UF767.S33
Journal of College Science Teaching Q183.U6J68
Journal of Geological Education QE40.J6
Learning LB5.L43
National Wildlife S964.U6N35
Nature Study QH81.N33
Ranger Rick's Naturescope WMLC L83/4136 Ser
Science Activities Q181.A1S29
Science and Children LB1585.S34
Science News Q1.S7b
Science Scope Not in LC collections
Science Teacher Q181.S38
Scientific American T1.S5
See particularly "Amateur scientist" feature which appears each month.

## REPRESENTATIVE JOURNAL ARTICLES

Brouse, Deborah E. Population growth: stretching the limits. Science and children, v. 27, Feb. 1990: 23-25. LB1585.S34

Browning, Wayne C. Construction of a small fresh water ecosystem. Science activities, v. 20, Sept./Oct. 1983: 25-28. Q181.A1S29

Clark, David B., and Ronald E. Thompson. Acid rain, pH & acidity: a common misinterpretation. American biology teacher, v. 51, Jan. 1989: 11-13. QH1.A275

Grossman, Dan, and Seth Shulman. Down in the dumps: a fearless team of archeologists has descended deep into the nation's landfills to learn the fate of our garbage. Discover, v. 11, Apr. 1990: 36-41. Q1.D57

Ham, Sam H., Mary H. Rellergert-Taylor, and Edwin E. Krumpe. Reducing barriers to environmental education. Journal of environmental education, v. 19, winter 1987/88: 25-33. S946.E54

Kayes, Barry M., and Joseph Smentowski. Student pond investigators. Science teacher, v. 54, Feb. 1987: 35-37. Q181.S38

Ojala, Carl F., and Eric J. Ojala. Airborne particles: the humble vacuum cleaner makes a first-rate air sampler in this environmental science activity. Science teacher, v. 54, Sept. 1987: 41-42. Q181.S38

Schicker, Lisa. Planning for children and wildlife begins at home. Journal of environmental education, v. 19, summer 1988: 13-21. S946.E54

Schneider, Mike. Setting up an outdoor lab. Science and children, v. 21, Jan. 1984: 17-20. LB1585.S34

Siegal, Shirley J. Motivating strategies in environmental science education. Science activities, v. 21, Sept./Oct. 1984: 37-42. Q181.A1S29

Wilson, Edward O. Threats to biodiversity. Scientific American, v. 261, Sept. 1989: 108-112, 114, 116. T1.S5

**SELECTED MATERIALS** available in the Science Reading Room pamphlet boxes include:

Cothron, Julia H., Richard J. Rezba, and Ronald N. Giese. What to keep in mind during experimental design. Science teacher, v. 56, Nov. 1989: 33-36.

Endangered species: wild & rare. Washington, National Wildlife Federation, c1988. 65 p. (Ranger Rick's naturescope, v. 3, no. 3)
Includes listings of reference tools, activity sources, films, videos, kits, posters, software, and information resources.

Hanif, Muhammad. The greenhouse: a place for year-round plant investigations. Science activities, v. 26, Nov./Dec. 1989: 23-27.

Koenig, Sharon, and Robert Koenig. Hometown ecology: a river rescue in progress. Science teacher, v. 56, Nov. 1989: 53-55.

Laycock, George. The children's crusade. Wildlife conservation, v. 93, May/June 1990: 42-49.
Across America, youngsters at school and at home are helping to clean up the environment and protect the nation's wildlife. Information on how to join Kids Against Pollution (KAP) is included.

MacKenzie, William H. The trashy sea around us. A disgraceful plastic tide is fouling the oceans--and killing marine animals. Defenders, v. 62, May/June 1987: 30-37.

Mohlenbrock, Robert H. Why should we save our plants? Nature Conservancy magazine, v. 37, Nov./Dec. 1987: 4-9.

Rain forests: tropical treasures. Washington, National Wildlife Federation, c1989. 68 p. (Ranger Rick's naturescope, v. 4, no. 4)
Includes listings of reference tools, activity sources, booklets, films and videos, and the location of zoological parks and other institutions that have tropical rain forest exhibits.

Robinson, David L. Close encounters of the endangered kind. Science teacher, v. 57, Feb. 1990: 34-36.

Sisson, Edith A. Seeds--away they go! Studying seed dispersal sends students out of the classroom and into science. Science and children, v. 27, Oct. 1989: 16-17.

Stubbs, Harriett S. Acid rain: science projects. Science activities, v. 26, Feb./Mar. 1989: 28-30.

Taking the swamp out of "swamp water." Science and children, v. 27, Nov./Dec. 1989: 48-51.
Reprinted from Earth, the water planet (Washington, National Science Teachers Association, 1989).

Virtue, Damaris H. Highway ecology. Science teacher, v. 56, Sept. 1989: 48-49.

## ADDITIONAL SOURCES OF INFORMATION

Charles Edison Fund
101 South Harrison Street
East Orange, New Jersey 07018
Telephone: (201) 675-9000
Distributes teaching materials containing experiments of interest to science fair enthusiasts.

Global Tomorrow Coalition
1325 G Street, N.W., Suite 915
Washington, D.C. 20005-3104
Telephone: (202) 628-4016
Publishes educational materials on global ecology and sustainable resources.

National Science Teachers Association
1742 Connecticut Avenue, N.W.
Washington, D.C. 20009
Telephone: (202) 328-5800
Publishes Science Fairs and Projects, Science and Children, Science Scope, and Journal of College Science Teaching.

National Wildlife Federation
1400 16th Street, N.W.
Washington, D.C. 20036-2266
Telephone: (202) 797-6800
Publishes National Wildlife, Ranger Rick's Nature Magazine, Ranger Rick's Naturescope, and other publications of interest to students and environmentalists.

Science Service
1719 N Street, N.W.
Washington, D.C. 20036
Telephone: (202) 785-2255
Administers the International Science and Engineering Fair and the Westinghouse Science Talent Search.

World Watch Institute
1776 Massachusetts Avenue, N.W.
Washington, D.C. 20036
Telephone: (202) 452-1999

Publishes World Watch, the State of the World, and other publications of interest to those concerned with the state of the environment.